Appendix H

Wetland Mitigation Memorandum

Preliminary Wetland/Riparian Mitigation Program
Bautista Canyon Road Project

Prepared for:
County of Riverside
Federal Highway Administration

March 2004

1.0 INTRODUCTION

This report summarizes the preliminary wetland mitigation strategy for the Bautista Canyon Road Project. From the beginning of the planning process for this project, the objective has been to avoid and minimize impacts to sensitive resources, including wetlands. Surveys for these resources, including vegetation mapping and a formal wetland delineation, were conducted early in the process to provide the design team with information on the biological constraints of the canyon. To the maximum extent practicable, the three alternative alignments avoid and minimize impacts to wetlands and riparian areas. Because this is a linear project located in a canyon, some impacts to jurisdictional wetlands and riparian areas are unavoidable. For these unavoidable impacts, the following wetland/riparian mitigation program has been developed. This report summarizes the unavoidable impacts from the project, the mitigation strategy developed for the project, and the potential sites and methods for the proposed mitigation.

2.0 UNAVOIDABLE PROJECT IMPACTS

A summary of the unavoidable impacts to jurisdictional areas and non-jurisdictional riparian communities is provided in Table 1. The objective of the wetland mitigation program will be to mitigate these impacts, both in terms of acreage and function.

Table 1
Jurisdictional and Non-jurisdictional Wetland/Riparian Impact Assessment for the Bautista Canyon Road Project Alternative Alignments

	40 km/h Impact (acres)	55 km/h Impact (acres)	Combo Impact (acres)
Jurisdictional Areas			
Jurisdictional wetlands -Southern willow scrub	0.17	0.12	0.16
-Seeps	0.16	0.06	0.16
Jurisdictional non-wetland waters of the U.S.	0.32	0.38	0.35
Jurisdictional Impact Total	**0.65**	**0.54**	**0.67**
Non-Jurisdictional Riparian Vegetation			
Southern cottonwood willow riparian forest	0.77	0.66	0.31
Southern willow scrub	0.17	0.10	0.20
Non-Jurisdictional Impact Total	**0.94**	**0.76**	**0.51**
Total Wetland/Riparian Impact	**1.59**	**1.30**	**1.18**

Source: FHWA impact calculations based on AMEC biological data and FHWA alignment data. Calculations run in November 2003 for wetlands, seeps, and non-jurisdictional vegetation and in February 2004 for non-wetland waters of the U.S.

3.0 MITIGATION STRATEGY

This strategy and approach for mitigating unavoidable impacts to jurisdictional wetlands, non-wetland waters of the U.S., and non-jurisdictional riparian areas has been iteratively developed by the County of Riverside, the Federal Highway Administration (FHWA), the U.S. Forest Service (USFS), and consulting biologists. The overall mitigation strategy for this project would be to replace lost wetland and riparian functions, values, and acreage within Bautista Creek.

A formal functional assessment has not been developed for this project, however information was collected to provide an informal assessment of functions and values. Overall, the wetlands and riparian areas in the study corridor all provide high to very high hydrological, chemical, and biological functions. The riparian areas and wetlands in the canyon are relatively pristine examples of cottonwood willow riparian forest, southern willow scrub, and freshwater seep communities. Bautista Canyon is a natural, undeveloped area with little disturbance. These riparian communities and wetlands provide excellent "reference wetlands" for high to very high functions and values. Hydrological functions provided by the riparian and wetland areas of Bautista Canyon include floodflow alteration, sediment retention, and groundwater recharge. Chemical functions provided by the riparian and wetland areas of Bautista Canyon include nutrient transformation, nutrient cycling, production export, and water quality maintenance. Biological functions provided by the riparian and wetland areas of Bautista Canyon include wildlife diversity and abundance (including sensitive wildlife species), wildlife breeding, wildlife migration, wildlife wintering, wildlife diversity, plant diversity (including sensitive plant species), and aquatic diversity. Additionally, the riparian and wetland areas of Bautista Canyon provide social functions and values by supporting plant species that were historically harvested by Native Americans and as the historic route of Juan Bautista de Anza.

Unavoidable impacts to these valuable riparian and wetland resources are considered significant. This mitigation program is designed to compensate for the impacted wetland and riparian acreage and replace the lost functions through a combination of wetland and riparian creation, restoration, and enhancement.

Unavoidable impacts to wetlands and riparian areas should be mitigated, to the maximum extent practicable, within the watershed at the preferred locations within the study corridor on Bautista Creek.

4.0 WETLAND MITIGATION SITES AND METHODS

Two mitigation site reconnaissance field surveys were conducted to identify potential mitigation options. The first survey was conducted January 22, 2003. The second survey was conducted December 4, 2003. AMEC followed a sequence to identify and prioritize mitigation sites for this project that first looked at on-site in-kind options, then off-site (but still in Bautista Canyon) in-kind options, and finally offsite out-of-kind options. AMEC consulted with the County and with the USFS to identify potential mitigation sites.

Because the impact acreage is relatively small (Table 1), it is anticipated that the required mitigation for these impacts could likely be implemented completely within Bautista Canyon. This may include a combination of on-site and off-site locations, all located on Bautista Creek and its immediate tributaries. The following list summarizes the identified locations for mitigation in Bautista Canyon. The opportunities, constraints, and mitigation methods to be used at each site is summarized. The acreage and square footage estimates are approximations. The site numbers and summaries are listed as they occur from north to south (i.e., downstream to upstream).

4.1 Site 1: Downstream Tamarisk Removal Section - Off-site Riparian Enhancement

A section of Bautista Creek from Forest Highway (FH) 224 milepost 6 to milepost 8.5 has a substantial salt cedar infestation. Salt cedar (*Tamarisk* spp.) is an invasive riparian tree species. Tamarisk removal in this section of Bautista Creek would enhance the habitat value of the riparian vegetation. The downstream portion of this section (near milepost 6) is characterized as alluvial scrub, whereas the upstream portion (near Hixon Trail around milepost 7) is mature cottonwood willow forest. The individual tamarisks are small to medium and estimated at over 1,200 individuals in this section. These individuals are dense in some areas and scattered in other areas. Because this section of Bautista Creek supports several sensitive species including San Bernardino kangaroo rat, southwestern willow flycatcher, arroyo toad, and the slender-horned spineflower, the benefits of tamarisk removal should be weighed against the potential impacts to sensitive plants and wildlife. Because the conservation value of this area is high, heavy equipment and herbicide application should not be used or should be limited and focused. Manual labor crews would be the preferred control method. A qualified biologist should map appropriate areas for exotic control and monitor all exotic removal activities. Coordination with the USFS would be necessary to implement any enhancement or restoration at this location. Figure 1 shows photos of this site.

4.2 Site 2: Arizona Crossing - On-site, In-kind Restoration

This is the location where the existing roadway crosses Bautista Creek at a low-water crossing. All three alternative alignments for the proposed road would abandon this crossing location and would cross Bautista Creek with a bridge. The small area of existing dirt road that crosses the creek and the small parking area at the crossing could be restored.

Based on a preliminary sketch of this location prepared by FWHA, approximately 1,000 square feet ([ft^2], 0.02 acre) of cottonwood willow riparian forest could be restored at this location. It is anticipated that this location could support both jurisdictional riparian wetland restoration (in the immediate vicinity of Bautista Creek) and non-jurisdictional riparian restoration (on the slopes and floodplain of the channel). In-kind restoration of the site would include planting cuttings from adjacent willows (*Salix lasiolepis,S. exigua*) and mulefat (*Baccharis salicifolia*) and containers of Fremont cottonwood (*Populus fremontii*). Seeding of the site with appropriate understory species may also be used. A moderate level of natural revegetation from the adjacent vegetation is expected at this location, which would augment the plantings. No supplemental irrigation is proposed at this location. Mitigation monitoring would be a component of the mitigation program at this location. Coordination with the USFS would be necessary to implement any restoration at this location. Figure 2 shows photos of this site.

4.3 Site 3: Cottonwood Canyon - On-site, In-kind Restoration

This location includes portions of Bautista Creek where the existing roadway is currently within the floodplain and immediately adjacent to the riparian corridor of the creek. Within Cottonwood Canyon, the project proposes to move the roadway out of the floodplain up the slopes of the canyon. A majority of the existing roadway would be covered by fill slopes of the new roadway, but there are 6 locations where the existing roadway would be abandoned and not covered. In-kind restoration of the abandoned roadway at these specific locations would restore jurisdictional southern willow scrub communities adjacent to the existing jurisdictional Bautista Creek riparian corridor.

These 6 sites are bends in the existing roadway, numbered 3a through 3f. Based on a preliminary sketch of these locations prepared by FWHA, 3a is 17,308 ft^2 (0.40 acre), 3b is 1,356 ft^2 (0.03 acre), 3c is 926 ft^2 (0.02 acre), 3d is 5,048 ft^2 (0.12 acre), 3e is 4,316 ft^2 (0.10 acre), and 3f is 13,186 ft^2 (0.30 acre).

According to these preliminary estimates, a total of approximately 0.97 acre of jurisdictional southern willow scrub could be restored in the abandoned roadway along Bautista Creek in the Cottonwood Canyon area.

The elevation of the roadway in relation to the adjacent creek would be investigated to determine if wetland hydrology is attainable and to determine if grading is necessary. The roadway surface may also need to be de-compacted in order to support vegetation. In-kind restoration of the site would include planting cuttings, during the appropriate season, from adjacent willows and mulefat. Seeding of the site with appropriate understory species may also be used. A high level of natural revegetation from the existing adjacent vegetation is expected at this location, which would augment the plantings. No supplemental irrigation is proposed at this location. Mitigation monitoring would be a component of the mitigation program at this location. Coordination with the USFS would be necessary to implement any enhancement or restoration at this location. Figure 3 shows photos of this site.

4.4 Site 4: Tripp Flats Intersection - On-site, In-kind Creation

At this location, the proposed roadway would be located in the approximate location of the existing roadway and would include an oversized culvert system. The intersection of Bautista Canyon Road with the road to Tripp Flats occurs where 2 forks of Bautista Creek combine into one channel, which then flows north into Cottonwood Canyon. As you continue southeast on Bautista Canyon Road, the southern fork of Bautista Creek parallels the road on the south side. In this immediate area, the upland area between the roadway and the existing drainage corridor could be converted to riparian vegetation.

This upland area is 2 to 6 feet above the bottom of the existing drainage and is characterized as Great Basin scrub. Because a substantial amount of excavation would likely be required at this location to establish wetland hydrology, this location is better suited for the creation of non-jurisdictional southern willow scrub riparian vegetation.

Preliminary estimates indicate that 3,000 ft^2 to 4,000 ft^2 (0.07 to 0.09 acre) of creation could occur at this location. Following site preparation and excavation, in-kind riparian creation at this site would include planting cuttings, during the appropriate season, from adjacent willows. Seeding of the site with appropriate understory species may also be used. A low to moderate level of recruitment from the adjacent vegetation is expected at this location, which would augment the plantings. No supplemental irrigation is proposed at this location. Mitigation monitoring would be a component of the mitigation program at this location. Coordination with the USFS would be necessary to implement any enhancement or restoration at this location. Figure 4 shows photos of this site.

4.5 Site 5: Tripp Flats Pond - Off-site, In-kind Creation

Just southwest of the study corridor along the road to Tripp Flats, an earthen embankment on a tributary to Bautista Creek has created a pond. This pond may be used as a stock pond for livestock grazing. The land owner for this pond is currently unknown. The open water of the pond is surrounded on the south and west by wetland vegetation (*Juncus* and *Scirpus*), but the north side of the pond is a disturbed area. This disturbed area is sparsely vegetated with ruderal species. It is anticipated that this location could support both jurisdictional riparian wetland creation (in the immediate vicinity of the pond) and non-jurisdictional riparian creation (on the slopes of the pond).

Because the pond is perennially inundated, the amount and success of wetland creation at this site is potentially higher. At least 0.5 acre of creation could be accommodated around this pond. Ownership and use of this site need to be investigated further. Figure 5 shows photos of this site.

4.6 Other Potential Mitigation Opportunities in the Watershed

The focus of this preliminary reconnaissance and assessment was to identify the most logical locations for wetland mitigation in Bautista Canyon. Other potential sites likely exist. The County of Riverside, USFS, U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (Corps), U.S. Geological Survey (USGS), and California Department of Fish and Game (CDFG) should continue to be consulted regarding other mitigation efforts and opportunities in the watershed. Upon review and comment on this preliminary assessment, additional sites and opportunities for wetland mitigation may be investigated.

During consultation with the USFS for this report, several mitigation opportunities were identified that are not discussed above. Johnson Meadow, Willow Spring, and Palm Canyon locations were all suggested as potential sites for wetland enhancement or restoration. Because these locations are not located within Bautista Canyon, these sites have not been considered for mitigation for this project at this time.

Several other "non-traditional" mitigation opportunities could also be considered. Small inholdings of private land could be purchased and preserved as mitigation for the proposed project. As identified by the USFS, a parcel is currently for sale near the mouth of the canyon, downstream from Hixon Trail. This option could serve to mitigate more than just wetland impacts. Other potential mitigation opportunities include contributing mitigation fees to ongoing USFS mitigation projects or to wetland mitigation projects on the Santa Ana River or San Jacinto River, such as Team Arundo.

4.7 Other Measures for Mitigating Wetland and Riparian Impacts

Other measures have been included as part of the proposed project to minimize and avoid indirect impacts to wetlands and riparian areas in Bautista Canyon. Implementation of this project would include culvert improvements at all drainage crossings. The main crossing of Bautista Creek would be a bridge. These design features may contribute to improved wildlife movement in the canyon. In addition, water quality is expected to improve with reduced sediment loads entering the creek from the roadway and crossings.

5.0 CONCLUSION

Implementing a coordinated mitigation program at several of the sites described above should compensate for the jurisdictional and non-jurisdictional impacts from the proposed project. Based on this preliminary assessment of mitigation opportunities on Bautista Creek, sites 2 and 3 are recommended for implementation because these sites involve in-kind restoration of abandoned roadway sections on Bautista Creek. Site 2 would provide approximately 0.02 acre of jurisdictional and non-jurisdictional mitigation. Site 3 would provide approximately 0.97 acre of jurisdictional mitigation.

Salt cedar removal in the downstream portions of Bautista Creek (i.e., Site 1) would provide riparian enhancement mitigation, but this option should be evaluated more closely to determine if enhancement would affect sensitive species in the area. Mitigation at this site cannot be recommended at this time.

Site 4 would provide non-jurisdictional creation opportunities but would require site excavation and the removal of the existing undisturbed Great Basin scrub vegetation. This site is recommended as a secondary mitigation option.

Site 5 is ideal for wetland creation because it has an existing water source and is currently disturbed. Approximately 0.5 acre of jurisdictional and non-jurisdictional mitigation could be implemented at this

location. Because the ownership and use of the pond are currently unknown, mitigation at this site can not be recommended at this time.

This report is intended to summarize and prioritize the preliminary wetland mitigation options for the Bautista Canyon Road Project. Following review and comment on this preliminary assessment, a more detailed wetland mitigation proposal will be developed.

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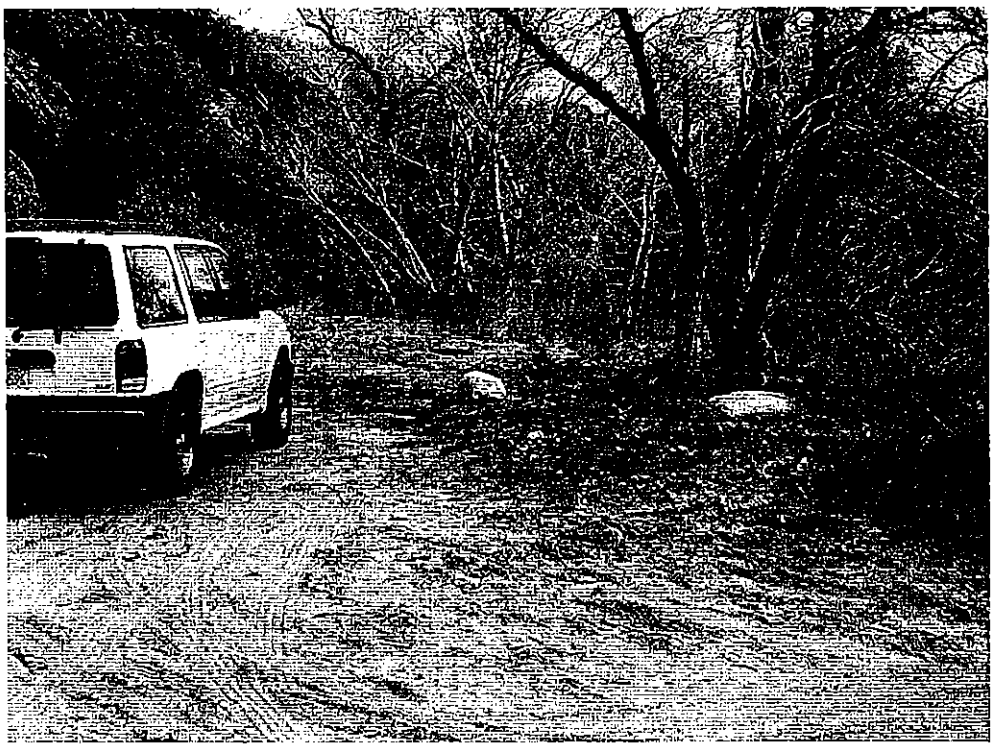
Site 1: Off-site Salt Cedar Removal. Located on Bautista Creek, in a 2.5 mile section downstream of Study Area in the vicinity of Hixon Trail.

FIGURE

1

Graphics/Biology/Bautista/Photos_1.fh8

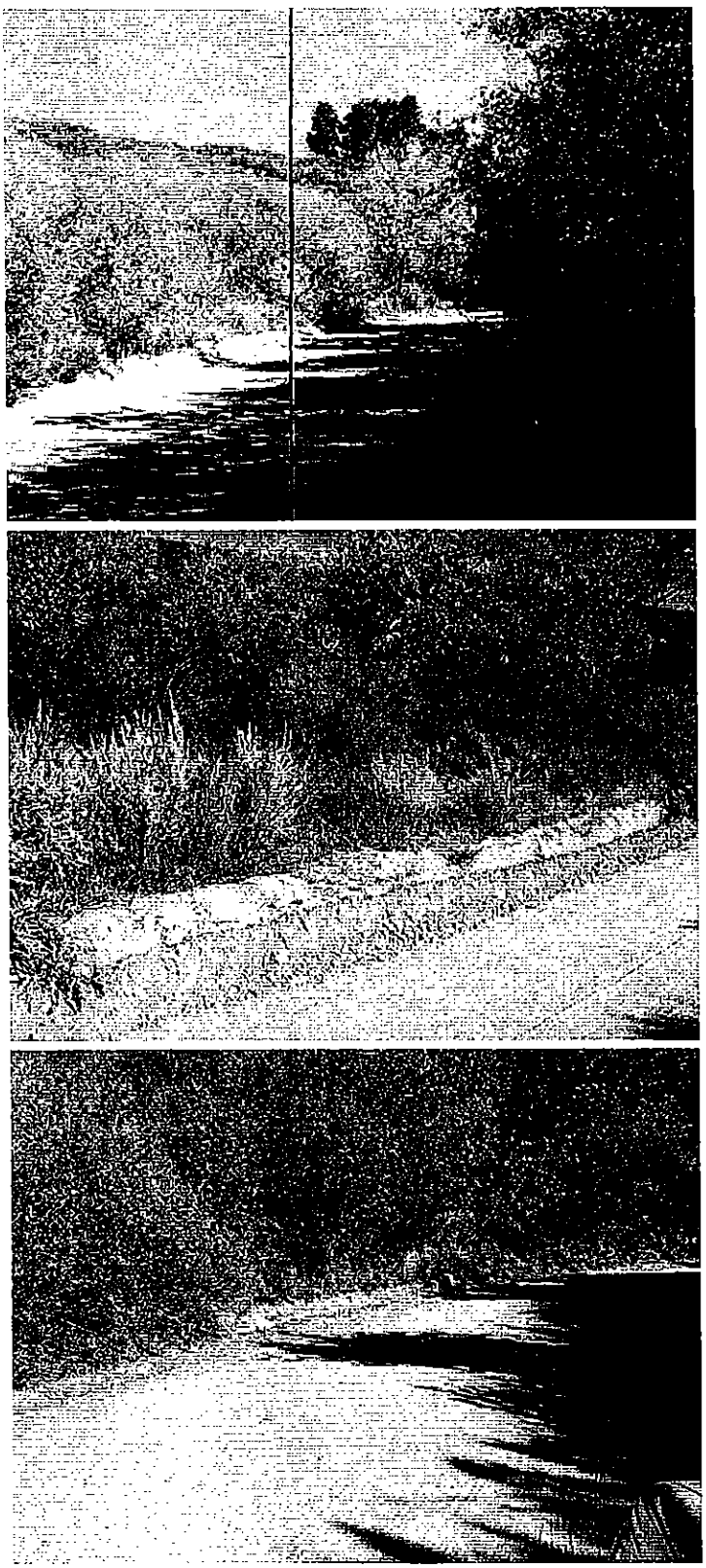


Site 2: On-site Restoration. Located at existing crossing of Bautista Creek that will be abandoned by the proposed project.

FIGURE

2

Graphics/Biology/Bautista/Photos_2.fh8



Site 3: On-site Restoration. Abandoned roadway sections in Cottonwood Canyon on Bautista Creek.

FIGURE 3

Graphics/Biology/Bautista/Photos_3.fh8

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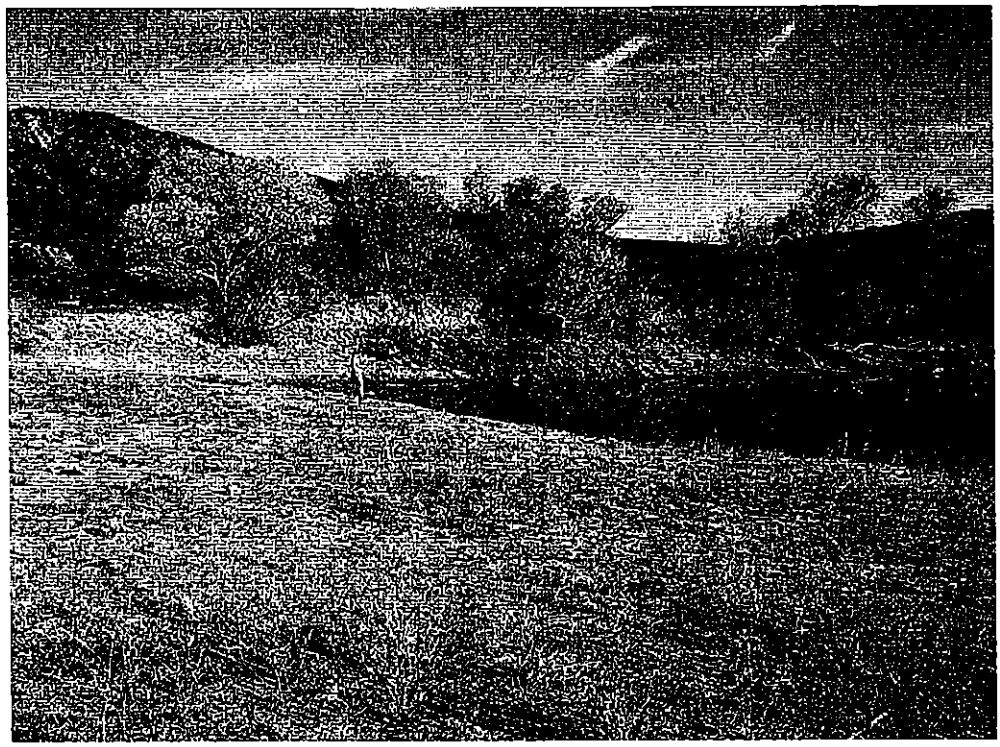
Site 4: On-site Creation. Potential area for southern willow scrub creation adjacent to the existing riparian corridor of Bautista Creek at the Tripp Flats Intersection.

FIGURE

4

Graphics/Biology/Bautista/Photos_4.fh8



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Site 5: Off-site Creation. Southern willow scrub and freshwater marsh creation around an existing pond just off-site near Tripp Flats.

FIGURE

5

Graphics/Biology/Bautista/Photos_5.fh8